ST/SSO/16
26 December 1973
ORIGINAL: ENGLISH

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INDUSTRY

Special Sahelian Office

73-31270

SUMMARY

The six countries involved in the Sudano-Sahelian zone (Chad, Mali, Mauritania, Niger, Senegal and Upper Volta) generally have the same problems, the principal one being lack of water due to the hot climate and low rainfall. Soil conditions are usually poor with agriculture being limited to certain areas of the country. Bad roads and a lack of or insufficient railways make transportation expensive and, in some cases, impossible. In spite of these conditions, all countries, with the exception of Mauritania, rely on agriculture as a basis for their economy, and it is, therefore, important to try to improve this sector. UNIDO could provide assistance in the following areas:

(a) Feedstuff production: since animals are fed almost entirely by grazing, and since grass, due to the unfavourable climate, is not readily available, it might be opportune to develop a feedstuff production scheme. With the provision of high protein feed, the animal and animal by-products could be increased which, in turn, would supply raw materials for the idle meat processing plants. A great number of feed methods would have to be studied and evaluated in this respect, but it would be important to select a suitable location where water can be found in order to establish model feed-mixing centres.

(b) Agro-industrial animal husbandry centres: if the conditions described above could be created, it should prove possible to set up a feed production and livestock centre which would consist of the following units:

- storage of feedstuff ingredients, vegetable oil production plant, grass driers;
- feedstuff preparation and mixing plant;
- livestock production facilities (feeding lots, hatcheries, poultry farms, etc.);
- meat, milk, eggs and chicken processing plants;
- slaughterhouse by-products (hair, bones, etc.) utilization;

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- hide and skin tanneries;
- consulting and extension service facilities (maintenance);
- water supply and energy production units in order to make the centre an independent industrial venture;
- unloading, loading and storage facilities;
- housing for staff and their families; and
- transport facilities within the centre and connections to suppliers and markets.

The first phase of such projects would be the elaboration in the form of pre-feasibility studies of all the necessary details, specifications and time schedules. The second phase would be the establishment of centres.

Other agricultural areas in which UNIDO could help are the following:

(a) Simple agricultural tools and implements pilot manufacturing plant;

(b) Water desalinization and distillation;

(c) Development and local assembly/manufacture of full range of irrigation machinery and allied equipment;

(d) Agro-chemical input centres (fodder, fertilizers, pesticides, construction);

(e) Production of asbestos cement pipes for irrigation;

(f) Establishment of fertilizer mixing plant; and

(g) Food engineering consultancy service.

All six countries have large mineral deposits in varying degrees of exploitation, which have a good potential for export if transportation could be provided. Eventually, UNIDO could offer expertise in the processing of certain minerals.

UNIDO could also provide assistance in the following fields:

(a) Establishment of a foundry and mechanical workshop;

(b) Maintenance and repair of transport and industrial equipment; and

(c) Feasibility study on the manufacture/assembly of diesel electro-generators in low-density populated areas.

C H A D

Basic problems for industrial development

One half of the country is in the Sahara desert where there are extreme climatic conditions and uneven annual rainfall. Moreover, soil conditions are poor and soil improvements most difficult to carry out in any significant extent. Agriculture is therefore severely handicapped and cultivation is only possible in oases and river beds during the dry season. 4.5 million cattle are raised in the savanna land of the country but cows have a low fertility rate and cattle mortality is considerable due to malnutrition and disease.

The extent of mineral resources is largely unknown and the United Nations is assisting the Government's geological service by undertaking a survey in various areas to identify the extent of deposits.

Transport costs are very high due to bad road connexions, particularly with the sea (the nearest port is over 1,000 miles from Chad which is entirely landlocked) and also because of the lack of a rail network. River transport is only possible on a seasonal basis and exports are largely air-freighted.

Industry is further handicapped by the lack of raw materials, insufficient electric power and a limited domestic market.

Significance of industrial sector to the economy and relationship to other economic sectors

In view of the above-mentioned problems, there is little industry in the country. Chad's largest export, accounting for 75-80% of revenues, is cotton. The other main export is livestock. Economic development relies to a great extent on foreign sources for investment capital in view of the modest role which industry plays. The Government has emphasized that private foreign investment is welcomed. Two of the four commercial banks in Chad are French-owned and the country is largely assisted by France in the form of development grants.

Opportunities for further UNIDO assistance exist in small-scale industry, meat processing and clothing.

Past achievements

Chad does not have an impressive record in economic development since its independence in 1960. Its largest advantage is its self-sufficiency in food.

UNIDO assistance has been primarily in the food processing industry. A mission on the development of vegetable oil technology was carried out, concerned with the improvement of soaps and oil production and reviewing existing groundnut oil plants. A study was made on a plant for the production of biscuits which has now been extended to include baking processes. Another mission investigated the possibility of manufacturing locally agricultural equipment at prices that would favourably compare with foreign competition.

Objectives and targets

Chad's main criteria for future development are:

- increase of exports (cotton, by improving cultivation techniques and making use of by-products; meat, by developing and modernizing livestock projects; and gum arabic);
- development of import-substitution (sugar, cigarettes, soap, matches, textiles, clothing, etc.) and promotion of small and medium industries;
- modernization and development of agricultural production to supply raw materials for the above industries and industries already established (sugar cane, tobacco, groundnuts);
- development of building and civil engineering industries (using local materials to the greatest extent);
- improvement of education and vocational training (to reduce the need for foreign experts and technical assistance);
- study and development of natural resources (particularly minerals);
- improvement of transport links with the outside; and
- encouragement of national saving.

M A L I

Basic problems for industrial development

The climatic conditions of Mali cause problems for agriculture with no rainfall in the northern desert region. The southern and western regions have rainy seasons but the average annual temperatures are high and agriculture has to rely to a large extent on irrigation and flooded river valleys.

Mali has a good system of highways, but secondary roads require improvement in order to transport raw materials. A short railway system exists but is handicapped by insufficient maintenance facilities; an investment programme is presently being undertaken to improve the railway. Mali is accessible by air, and the Government is planning to build a new airport. River navigation is only possible during six months of the year for large boats but can be used all the year by smaller craft.

While Mali has large mineral resources, the lack of electric power and transport facilities hinder industrial development.

Significance of industrial sector to the economy and relationship to other economic sectors

Industry plays a minor role in the country's economy, receiving only about 15% of planned development expenditures. Livestock is the most important asset as well as being the country's main export. There is a large potential for an increase in livestock production and associated industrial processing in view of growing export markets, but this activity has not received attention proportionate to its importance until now. However, in recognition of this fact, 60% of the Government's planned expenditure is directed at the development of agriculture. Dried and smoked fish are also important exports which together with livestock account for about one half of the country's GNP.

Mali has large budgetary and balance of payment deficits and relies to a great extent on subsidies from France. In the last decade, the national product rose by only 3% annually. The Government is particularly anxious to encourage the participation of foreign private capital and management.

UNIDO could provide significant assistance in the field of meat processing and canning as well as to mechanize current fish drying and smoking techniques which still rely largely on primitive practices.

Past achievements

Mali has the advantage of being self-sufficient in the food sector. It has various industries including textiles which it exports in small quantities, as well as in the field of metal processing and various light industries. Mali has taken the initiative in promoting and implementing joint ventures with neighbouring countries.

UNIDO has prepared studies on the aluminium and iron and steel industries but recommended that further development be held in abeyance for several years. Assistance was provided to an aluminium foundry which was running smoothly when the expert left the country, but the Government has recently requested further assistance. A consulting firm under contract to UNIDO, reorganized a tomato processing and canning plant.

Objectives and targets

The main target of the country is to raise the gross domestic product, and the Government is devoting a large part of the budget to the development of agriculture and the country's infrastructure. A solution to the electric power problems is foreseen by the construction of the Selingué dam and reservoir which will permit the generation of more power at an existing power station. In addition, the Government is seeking financing for the expansion of water supplies and treatment facilities. A highway maintenance and feeder road improvement programme is also planned to increase transportation facilities.

Mali has made some progress in the face of considerable difficulties in carrying out a reform in basic education and hopes to improve and expand the training programme of middle-level workers.

Mali generally inclines towards public rather than private enterprise and has established a programme of priorities for investments in the public sector.

M A U R I T A N I A

Basic problems for industrial development

The climate in Mauritania is hot and dry with the limited and irregular rainfall being concentrated in the south. Water is scarce, the soil infertile, and the main activity in the field of agriculture is therefore livestock. Agricultural land covers only 28% of the country and development suffers from a lack of skill among the peasant population. All indigenously produced agricultural products are consumed locally and additional food is imported.

The road system is still very primitive, generally being merely desert trails and many roads are impassable in the rainy season. A railway was built exclusively for transporting iron ore to the coast. However, the lack of a deep water harbour and the slow progress on the extension of an existing port has tended to retard exploitation of the copper deposit.

Significance of industrial sector to the economy and relationship to other economic sectors

There are substantial deposits of high-grade iron ore which is exported in considerable quantities, and the revenue from these mines finances about quarter of the Government's budget. There are also extensive deposits of copper, the exploitation of which constitutes the second largest mining venture in Mauritania. Large deposits of gypsum have recently been found.

Apart from iron ore and copper, the country's exports are modest and consist principally of fish and fish products, livestock, gum arabic and salt. With some of the most prolific fishing grounds in the world, fishing is a growing industry. Livestock breeding is the country's main rural resource, and the export of meat is therefore being promoted. Mauritania produces approximately 12% of the world production of gum arabic. The Government is trying to increase the production of agricultural products.

With the development of the iron ore and copper deposits, the economy of the country has changed, and it has a positive balance of payments. These increased revenues are expected to make the expansion of industrial development possible. Mauritania still depends on France and the European Economic Community for economic and technical aid with foreign investment playing a significant role in its investment programme.

UNIDO is in a position to provide technical assistance in the area of food processing as well as fish canning. Also, help in manufacturing locally agricultural implements could be provided by UNIDO.

Past achievements

Mauritania has built a railway and opened up a port in order to export its iron ore and copper concentrates. The recently found deposits of gypsum and phosphates will also play an important part in the future economy of the country.

UNIDO has prepared several feasibility studies in various fields, including the possibility of marketing gypsum, the development of the iron and steel industry and the identification of further development of the copper industry. However, the general recommendations were that further action should be held in abeyance for several years because supporting elements are still missing. UNIDO also provided an industrial economist to assist the Government in the development of industrial projects. This activity would have had more success, had it been given the full support of the Government.

Objectives and targets

An increase in iron ore exports are planned and an important investment programme to extend iron ore mining, including lower grade ores, is under way. Mauritania also hopes to expand its fish exports, in particular by extending one of the fishing ports. Attempts will be made to increase the production of agricultural produces in order to reduce the inbalance in the country's economy which depends on the mines. Other activities

which will be given priority include the exploration and exploitation of other mineral resources, processing of local vegetable and animal products and the servicing of existing consumer goods industries.

Future development plans put the emphasis on projects which will yield early gains with relatively low capital output rations.

Studies are being undertaken to develop a road system and improve facilities for river traffic. The improvement of water and electricity supplies are envisaged as well as the construction of dams, schools and health centres. Other construction projects include a flour mill, a sugar refinery and a cement works.

N I G E R

Basic problems for industrial development

In Niger, most of the year is hot and dry with rain generally falling only during four months of the year. Two-thirds of the country is desert with much of it receiving only four inches of annual rainfall. A lack of water is therefore the country's most important problem impeding agricultural development.

There are high transportation costs due to the poor roads and absence of a railway. Since the country is landlocked, the only outlets to the sea are via Dahomey and Nigeria over considerable distances and a road net which is also less than fully adequate.

Significance of industrial sector to the economy and relationship to other economic sectors

Industry, which is severely hindered by the above problems as well as by competitive products from Nigeria, represents only 8% of the country's gross national product. The Government is placing emphasis on the exploration of existing resources, attracting foreign capital and improving secondary level education in its technical and vocational aspects, rather than on developing industry.

Although only one third of the total land area is cultivated, agriculture remains the basis of Niger's economic activity and, together with livestock, provides 95% of the population's livelihood. Economic growth is retarded particularly by the primitive state of animal husbandry and the absence of a well-developed marketing system. The country's industry is concentrated on processing agricultural products with peanuts providing half the export earnings. Dried fish are also exported. Cotton is Niger's second cash crop but is processed mainly for the home market.

The discovery of high-grade uranium ore was expected to assist the economy, but a recent drop in demand has led to hesitation in further developing this industrial opportunity. Other mineral exploitation is limited to the mining of limestone and gypsum. Large deposits of iron ore cannot be exploited due to the lack of transportation.

Private foreign capital investment and an improvement in the world prices of certain farm products has helped to reduce the country's deficit in its balance of payments. However, Niger still receives considerable economic assistance from France and the European Economic Community.

Chances for UNIDO to provide technical assistance exist primarily in the field of small-scale industries (which is already receiving some help from UNIDO) as well as in food processing and the manufacturing of agricultural implements.

Past achievements

The Government has taken measures to promote livestock breeding for the domestic and export markets. Irrigation and well-sinking projects have been carried out which has assisted the development of cotton and rice-growing. As a result of road construction, a cement factory which is supplied by a local gypsum deposit is able to provide for the country's needs. UNIDO is presently providing assistance in the reorganization and improvement of the factory.

UNIDO has also assisted in establishing an industrial estate which offered improved sites for small-scale industries, setting up standard factories, common service facilities and giving technical assistance to small entrepreneurs. The activities involved were a foundry, a small-scale metal industry and the assembly of cycles and motorcycles.

Objectives and targets

Future development plans for agriculture are to:

- diversify the foodstuff production;
- improve the infrastructure; and
- develop underground water resources.

In addition, improvements are also planned in the following areas:

- education (experiments are being carried out on mass education by means of television);

- health services;
- water and electricity, including the development of hydroelectric potential and the laying of cables to transport the current (an electric line is planned to a Nigerian dam);
- extension of the road system and the construction of road links with neighbouring countries' railways;
- modernization of the airport at Niamey for international traffic.

S E N E G A L

Basic problems for industrial development

Senegal has a hot and dry climate in summer and is cool in winter. Although it is primarily an agricultural country, food production is insufficient to meet the growing local demand. There is very little semi-skilled labour and even less skilled labour. Due to a lack of technical and management staff available within the country, the Government relies to a great extent on foreign managerial and technical manpower for industrial development. The country also suffers from a shortage of domestic raw materials for industry.

Significance of industrial sector to the economy and relationship to other economic sectors

Senegal's economy is based very largely on the cultivation and processing of groundnuts which, together with the recently developed cotton industry, is the basis of industrial development in the country. The production from various activities connected with livestock is also important in the general agricultural economy. Other processing industries, apart from fish canning and phosphates, are based on imported raw materials.

The only mineral resource under significant exploitation and of growing importance is phosphate, which is processed locally as well as being exported. Substantial copper deposits have been found but exploitation is uncertain. Prospecting for other minerals continues.

While 17% of the land is covered with forests, the industrial use of wood is relatively minor and represents an opportunity for development. Another promising area for development is the fishing industry, as the coastal waters are rich in fish.

Considerable investment is being made in industrial development. Sugar processing plants are under construction, and work on a refinery and distillery complex is expected to be completed this year.

The tourist trade is making an increasingly significant contribution to the economy, particularly in view of Senegal's important international airport. The Government has been encouraging private investment but continues to receive loans and grants under bi-lateral arrangements with developed countries.

New opportunities for UNIDO assistance exists primarily in the fields of basic agricultural machinery and implements as well as in the industrial processing of fish.

Past achievements

Senegal does not have major transportation problems since almost one-third of its roads have been surfaced, and plans exist for further construction. There are two main railway lines and a number of important ports, in addition to the international airport which has a significant position in the world as an air traffic transit centre for flights from North and South America.

Livestock plays an important role in the economy and the country has succeeded in increasing production rapidly over the last decade due to the health improvement of livestock and the provision of water points.

UNIDO has an important project in Senegal - assistance to small industries (SONEPI) - phase I of which has been completed. Some of the activities involved a sawmill, ratten-cane processing, a bakery, processing of shark skins, solar salt and the creation of an industrial information service.

A UNIDO expert resolved the initial problems at the SAFAL foundry. With UNIDO's assistance, a central pilot workshop for general repair and maintenance was established at the Thiès Industrial Estate. Also, a workshop for the maintenance and repair of motorized fishing boats was set up where UNIDO provided assistance jointly with bi-lateral Canadian aid.

Objectives and targets

The principal objective of the Fourth Development Plan (1973-77) is to maintain the annual growth rate of 5.5%. Senegal's first priority is therefore to develop agriculture, with particular emphasis on the processing of agricultural products. In this connexion, it is also hoped

to expand employment opportunities. Since the coastal waters are rich in fish, there is also a good potential for developing the fishing industry, and further aid has been allocated for motorizing the fishing fleet. Steps are also being taken to encourage import substitution.

Emphasis is being placed on the construction of surfaced roads and improvement of the existing network. Future plans also involve expansion of the existing rail system. Construction of and improvements to housing, water and sewage projects as well as the provision of new hospital facilities and schools are envisaged.

The country's best development opportunities may prove to be in cotton growing and manufacturing since it has one of the highest yields in Africa. It is also expected that future economic growth will be assisted by tourism which has recently been increasing in importance, and there are plans to construct hotels and develop national parks.

U P P E R V O L T A

Basic problems for industrial development

Water in Upper Volta is scarce with only ten inches of rain annually in the north and up to forty inches in the south. The valleys around the rivers are not suitable for the construction of high-capacity dams for energy production and irrigation purposes. One-third of the land is cultivated, but soils are thin and leeched except in the south along the rivers. Although agriculture is the basis of the economy and more than 90% of the people glean a living from the soil, it has been seriously hampered by aridity and erosion.

The country is landlocked, lying five hundred miles from the sea and is not linked by navigable waterways. While a railway connects the capital and the main commercial centre with a deepwater port in the Ivory Coast, financing has not been found to extend the railway to the manganese deposits which therefore cannot be exploited. The main rivers are not navigable, and very few roads are surfaced.

The mortality rate of the population is very high due to diseases, and this poses a problem for agriculture, since land in the most well-watered area of the country has often been abandoned due to the lack of able-bodied people to cultivate it.

There are no known natural resources for immediate exploitation.

Significance of industrial sector to the economy and relationship to other economic sectors

Livestock and products (hides, skins, milk) are of major importance for the domestic consumption and also account for over half of total exports. Cotton is the second export of the country but is presently declining in importance. Although fishing is little developed, there is a good potential in rivers of the western part of the country. A limited amount of dried fish is exported.

Industry, which represents only 2% of the Gross National Product, is hampered by the limited domestic market. It consists mainly of textiles and processing of agricultural products.

Although there is no mineral production, there are large deposits of high-grade manganese ore, the exploitation of which is dependent on improved transportation facilities. Limestone, bauxite, copper, tin and graphite have also been found, and mineral resources have a significant potential when placed in a ten-year perspective.

Upper Volta's balance of trade is unfavourable at the present time, and efforts are being continued to improve the public finances situation. Foreign aid helps to contribute towards the balance of payments as well as financing much of the development programme of the country.

UNIDO is in a position to provide assistance in preparing and extending various industrial zones. Expertise could also be provided in establishing a fodder production industry, manufacture of agricultural tools and in assisting with fruit and vegetable processing and canning.

Past achievements

In its Plan-Cadre 1967-70, Upper Volta drew up a programme for the co-ordination and development of its domestic activities and offered foreign sources an investment financing project for a four-year period. While the results of this Plan could have been better, they are not nearly as bad as might be feared after a lengthy period of economic and financial difficulties.

UNIDO assistance has been provided mainly in the form of feasibility studies connected with the agro-industrial and small-scale industries sectors. In particular, the establishment of an industrial estate has been investigated. Studies on the leather and fertilizer industries are also planned.

Objectives and targets

The objectives of the Government's Five-Year Plan are:

- to expand rural production to the maximum possible extent, as a priority matter;
- to determine the optimum use which the Upper Volta can make of its human resources;

- to ensure that the country's population attain a constantly improving level of culture, education and training;
- to utilize regional complementarities so that a satisfactory and rising standard of living may ensue;
- to acquire and strengthen Upper Volta's place in international community organizations; and
- with regard to external assistance, to secure long-term programming of investment credits and to ensure that such investment is increasingly adapted to the needs of the country.

In improving economic conditions, the Government's overriding objective is aimed at developing mineral resources, improving the infrastructure, making the agricultural and livestock sector more productive and competitive, and stabilizing supplies and prices of food grains.